

(19)



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11) Publication number:

0 517 355 A1

(12)

EUROPEAN PATENT APPLICATION(21) Application number: **92302851.8**(51) Int. Cl.⁵: **H01F 1/053, H01F 1/08,
C22C 38/10, C22C 38/14**(22) Date of filing: **01.04.92**(30) Priority: **07.06.91 US 711879**(43) Date of publication of application:
09.12.92 Bulletin 92/50(64) Designated Contracting States:
**AT BE CH DE DK ES FR GB GR IT LI LU MC
NL PT SE**(71) Applicant: **CRUCIBLE MATERIALS
CORPORATION**
**P.O. Box 977, State Fair Boulevard
Pittsburgh, Pennsylvania 13201(US)**(72) Inventor: **Kim, Andrew S.**
**2624 Monterey Drive
Pittsburgh, Pennsylvania 15241(US)**
Inventor: **Camp, Floyd E.**
**102 Jeanine Court
Trafford, Pennsylvania 15085(US)**(74) Representative: **Coxon, Philip et al**
**Eric Potter & Clarkson St. Mary's Court St.
Mary's Gate
Nottingham NG1 1LE(GB)**(54) **Corrosion resistant permanent magnet alloy and method for producing a permanent magnet therefrom.**

(57) A permanent magnet alloy of a Nd-Fe-B composition having a major Nd₂Fe₁₄B permanent magnet phase, with alloying additions of cobalt, aluminum and zirconium, in combination. The permanent magnet alloy may be produced as prealloyed particles by inert gas atomization. The particles are magnetically aligned and consolidated, as by cold isostatic pressing, and then sintered within the temperature range of 950-1100 °C to produce a fully dense alloy article. After heating at a temperature within the range of 850 to 950 °C for 30 to 120 minutes, the article is cooled at a cooling rate of 5-50 °C/min. to a temperature of 400-550 °C and thereafter aged at a temperature within the range of 500-750 °C, preferably 550 to 700 °C. Prior to consolidating, the particles may be blended with zinc stearate and comminuted to reduce the size thereof.

EP 0 517 355 A1